Upper Des Plaines River and Tributaries, Phase II, Illinois and Wisconsin Multi-Purpose Feasibility Study Peer Review Plan

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1. INTRODUCTION

The study area of the upper Des Plaines River watershed originates in an agricultural landscape in Racine and Kenosha counties of southeastern Wisconsin. The watershed then slopes south to where it meets with the confluence of the Salt Creek watershed near Riverside, Illinois. The Des Plaines River then flows southwest on to its confluence with the Kankakee River, which together combine to form the Illinois River. The study area of the upper Des Plaines Feasibility Phase II Study includes the entire drainage area upstream of Salt Creek and is approximately 485 square miles in area, 87-miles from north to south and 10-miles wide from east to west. Tributaries within the study area include about 331-miles of perennial and intermittent streams.

The Upper Des Plaines River Feasibility Phase II Study is a continuation of the Upper Des Plaines River Feasibility Phase I Study that was approved November 1999. The Feasibility Cost Sharing Agreement was signed in 2002. The Phase I study focused primarily on flooding problems along the main stem of the upper Des Plaines River (upstream of its confluence with Salt Creek), and recommended implementation of six projects to reduce main stem flooding. Study recommendations were authorized in the Water Resources Development Act of 1999 (P.L. 106-53). The Phase I study was preceded by a Reconnaissance study that was completed in 1989.

The Phase II Des Plaines River Feasibility Study was authorized by Section 419 of the Water Resources Development Act of 1999, and identified as the upper Des Plaines River and Tributaries, Illinois and Wisconsin. The authority provides the following:

Sec. 419. Upper Des Plaines River and Tributaries, Illinois and Wisconsin
a) In General. –The Secretary shall conduct a study of the upper Des Plaines River and tributaries, Illinois and Wisconsin, upstream of the confluence with Salt Creek at Riverside, Illinois, to determine the feasibility of improvements in the interests of flood damage reduction, environmental restoration and protection, water quality, recreation, and related purposes.
b) Special Rule. –In conducting the study, the Secretary may not exclude from consideration and evaluation flood damage reduction measures based on restrictive policies regarding the frequency of flooding, the drainage area, and the amount of runoff.
c) Consultation and Use of Existing Data. –In carrying out this section, the Secretary shall–
(1) consult with appropriate Federal and State agencies; and
(2) make maximum use of data in existence on the date of enactment of this Act and ongoing programs and efforts of Federal agencies and States."

The Phase II study has two primary purposes: flood risk management (mainstem and tributary damages) and environmental restoration of degraded ecosystems within the basin. Secondary purposes include water quality, recreation, and related purposes as noted in the authority. The study will consider sites located within tributary watersheds and along the main stem for both Flood Risk Management (FRM) and Ecosystem Restoration (ER) potential. The

affects of FDR sites located within tributary watersheds on mainstem flooding will also be evaluated.

The Phase II study is taking a systems approach to planning by building upon the Phase I analyses and integrating analyses aimed at multi-purpose solutions to problems across the entire watershed. A major outcome of the Phase II study will be a watershed management plan that identifies a combination of recommended actions for flood risk management and ecosystem restoration to be undertaken by the Corps as well as additional actions to be undertaken by various partners, stakeholders, and other agencies. The watershed management plan will identify multi-purpose actions for flood risk management, ecosystem restoration, water quality, and recreation purposes.

The purpose of the peer review plan is to assign the appropriate level and independence of review, establish the procedures, and assign responsibilities for conducting the Independent Technical Review (ITR) and Peer Review (PR). This peer review plan is compliant with the requirements of the Corps peer review process, documented in EC 1105-2-408, dated 31 May 2005.

2. PROJECT STUDY TEAM

The project study team includes several layers of management and coordination including, an Executive Steering Committee, Advisory Groups, the Project Development Team (PDT), and a number of technical committees that were established at the onset of the study to lead specific study efforts. There are five local sponsors for the study: Illinois Department of Natural Resources, Cook County Highway Department, Metropolitan Water Reclamation District of Greater Chicago, Lake County Stormwater Management Commission and Kenosha County. An outline of the study organization is contained in *Table 2.1*. The PDT is composed of working level staff from each of the local sponsors, staff from the Forest Preserves for both Cook and Lake Counties in Illinois, and the Chicago District. A listing of the technical committees is contained in *Table 2.2*. A list of the current PDT members is contained in *Table 2.3*. The Project Manager is the primary point of contact at the Chicago District for the study and the Quality Manager for the peer review plan. A list of the responsible major subordinate command (MSC) and associated planning and policy review team is contained in *Table 2.4*.

Table 2.1 – Study Team Organization

Study Team Component	Agency
Executive Steering Committee	
	U.S. Army Corps of Engineers, Chicago District (USACE)
	Illinois Department of Natural Resources (IDNR)
	Lake County Stormwater Management Commission (LCSMC)
	County of Cook, Illinois
	County of Kenosha, Wisconsin

Advisory Groups	
	Wisconsin Department of Natural Resources (WDNR)
	Southeastern Wisconsin Regional Planning Commission (SEWRPC)
	Chicago Metropolitan Agency for Planning (CMAP)
	Lake County Forest Preserve District (LCFPD)
	Forest Preserve District of Cook County (FPDCC)
	Northwest Municipal Conference (NWMC)
	Upper Des Plaines River Partnership (UDPREP)
Project Development Team	
	U.S. Army Corps of Engineers, Chicago District (USACE)
	Illinois Department of Natural Resources (IDNR)
	Lake County Stormwater Management Commission (LCSMC)
	Cook County Highway Department (CCHD)
	County of Kenosha, Wisconsin
	Southeastern Wisconsin Regional Planning Commission (SEWRPC)
	Forest Preserve District of Cook County (FPDCC)
	Lake County Forest Preserve District (LCFPD)
	Metropolitan Water Reclamation District of Greater Chicago (MWRDGC)
	U.S. Fish and Wildlife Service (USFWS)
Technical Committees	
	Membership drawn from agencies and groups listed above

Table 2.2 – Technical Committees

Committee	Current Chair	Office/Agency
Plan Formulation & Economics		IDNR-OWR
Hydrology & Hydraulics (H&H)		CELRC-PM-PL
Ecosystem Restoration (E-Team)		USFWS
Geographic Info Systems (GIS)		CELRC-PM-PL
Transportation		Cook County Highway Dept
Water Quality & Habitat	TBD	TBD
Real Estate and Recreation	TBD	TBD
Stormwater and Floodplain Management	TBD	TBD
Public Relations		CELRC-PA

* TBD – To be determined further in feasibility study when resources are needed

Table 2.3 – Study Project Delivery Team

Discipline	Name	Office/Agency
Project Manager		CELRC-PM-PM
Quality Manager		CELRC-PM-PL
Lead Planner		CELRC-PM-PL-E
Planning		CELRC-PM-PL

Environmental Analysis	CELRC-PM-PL-E
Environmental & Social Analysis	CELRC-PM-PL-E
Environmental Analysis	CELRC-PM-PL-E
Environmental Analysis	CELRC-PM-PL-E
Economic Analysis	CELRC-PM-PL-F
Economic Analysis	CELRC-PM-PL-F
GIS	CELRC-PM-PL
Real Estate	CELRE-RE
Design	CELRC-TS-D
Civil Design Analysis	CERLC-TS-D-C
Geotechnical Analysis	CERLC-TS-D-G
Structural Analysis	CERLC-TS-D-S
Hydrology and Hydraulic Engineering	CELRC-TS-D-HH
Hydrology and Hydraulic Engineering	CELRC-TS-D-HH
Hydrology and Hydraulic Engineering	CELRC-TS-D-HH
Environmental Engineering	CELRC-TS-D-HE
Cost Engineering	CELRC-TS-D-C
Construction	CELRC-TS-CO
Environmental Modeling	ERDC-EL-MS
Environmental Modeling	ERDC-EL-MS
Environmental Modeling	ERDC-EL-MS
Planning	IDNR-OWR
Planning	Kenosha County
Planning/H&H	IDNR-OWR
Planning/H&H	MWRDGC
Hydrology and Hydraulic Engineering	LCSMC
Hydrology and Hydraulic Engineering	SEWRPC
Hydrology and Hydraulic Engineering	MWRDGC
H&H/Transportation	CCHD
Environmental Analysis	USFWS
Environmental Analysis	USFWS
Environmental Analysis	LCFPD
Environmental Analysis	FPDCC
Environmental Analysis	IDNR
Environmental Analysis	SEWRPC
Environmental Analysis	SEWRPC
Environmental Analysis	LCSMC

Table 2.4 – Major Subordinate Command Planning and Policy Team

Discipline	Name	Office
Great Lakes and Ohio River Division		
Chief, Planning & Policy		CELRD-PP
Chicago District Liaison		CELRD-GL

Planning & Policy	CELRD-GL
Planning & Policy	CELRD-PP
Planning & Policy	CELRD-PP
Planning & Policy	CELRD-PP
ECO-PCX	CEMVD-RB-T
FDR-PCX	CESPD-PDS-P

Table 2.5 – Planning Centers of Expertise Team

Discipline	Name	Office
Mississippi River Valley Division		
ECO-PCX		CEMVD-RB-T
South Pacific Division		
FDR-PCX		CESPD-PDS-P

3. GENERAL REVIEW PROCESS

The review process for this study will consist of a project development team review, independent technical review and vertical chain review. At the present time, there are no plans to pursue a review by an external peer review panel. It is not anticipated that the feasibility study will result in complex or controversial recommendations or those with high levels of risk. Plans that address flood damages will include structural measures such as levees and reservoirs and non-structural measures such as buyouts, relocations and flood proofing all of which are not considered complex or controversial in nature. In addition, plans for ecosystem restoration including hydrologic restoration, native plantings, etc. also would not necessitate an external peer review. Currently there is no working level estimate of project implementation costs; therefore, it is unclear whether or not an external review would be required. Once a working level planning estimate of implementation costs for projects to be implemented by USACE has been developed, the requirement for an external peer review will be revisited. The Peer Review Plan will be updated at that time. The external peer review process was discussed by the District, the Local Sponsors, the HQUSACE and LRD review teams at the September 7, 2007 Feasibility Scoping Meeting. The District reported it's conclusions on the likely complexity of any proposed project, and indicated it would revisit the issue of the need for an external peer review, once a baseline estimate had been developed.

The Peer Review Plan will be reviewed and recommended for approval by both the National Planning Center for Ecosystem Restoration (ECO-PCX) and the National Planning Center of Expertise for Flood Risk Management (FRM-PCX), because the Upper Des Plaines Phase II study is a multi-purpose study with primary purposes of flood risk management and ecosystem restoration. The approved plan will be posted on the Chicago District web site and linked to the web sites for both PCXs.

4. ASSESSMENT OF PROJECT RISK

An initial project risk assessment was conducted by the study manager. Ultimately, the assessment of risk will be defined in coordination with the entire project team and the respective PCXs. For this exercise, an assessment was made of the risk associated with this project based upon the factors discussed in EC 1105-2-408 paragraph 4.b and the project was rated quantitatively among five levels of project risk, ranging from low to high (risk score class). All factors were weighted equally and are described further below. The rater considered previous experiences in this basin gained through the Phase I study and other similar projects when making this analysis. No attempt was made to tie this risk to a national scale of rating; however, it is assumed that the PCXs will bring this perspective to their assessment of the rating.

- Project risk inherent in project complexity is handled in the first group of items and deals with the potential that the project will fail after it is ultimately constructed.
- Customer expectation risk is a measure of the level of expectation of the sponsor and the risk that we may not be able to meet them.
- Staff technical experience was assessed as a low degree of risk if the staff had a high level of flood risk management and ecosystem restoration experience, and a high degree of risk if the staff had minimal experience.
- The impact of project failure and the subsequent consequences are determined based on preliminary future, without project scenarios in conjunction with sponsor and technical team member input.
- The project schedule and cost were assessed a low degree of risk if they both remained flexible, and a high degree of risk if the project schedule and cost were to become fixed.

The score for the risk items were summed and the average value of the risk assessment scores was used to determine overall project risk level as shown in *Table 4.1*. Based upon this initial assessment, the project is projected to carry medium level of risk with a score of 3.0. The need for EPR is also determined by the project magnitude which was determined to also have a score of 3.0, which is medium.

Table 4.1 – Initial Assessment of Project Risk and Magnitude

Assessment Item	Assessment Score (Low Degree to High Degree)					Score
	Low		Medium		High	
PROJECT RISK:						
Potential for Failure	1	2	3	4	5	*2*
Uncertainties of Predictions	1	2	3	4	5	*2*
Long Term Cumulative Effects / Customer Expectations	1	2	3	4	5	*4*
Staff Technical Experience	1	2	3	4	5	*4*
Failure Impact and Consequences	1	2	3	4	5	*3*
Average Project Risk Assessment Score:						**3.0**
PROJECT MAGNITUDE:						
Product Schedule/Cost	1	2	3	4	5	*3*
Project Complexity	1	2	3	4	5	*2*
Project Benefits	1	2	3	4	5	*4*
Project Scale	1	2	3	4	5	*3*
Average Project Magnitude Assessment Score:						**3.0**

5. OPPORTUNITIES FOR PUBLIC INPUT INTO PEER REVIEW PROCESS

In addition to the public access provided to the Peer Review Plan on the District and respective PCX web sites, the District will solicit public input regarding elements of a potential Recommended Plan through the upper Des Plaines River project newsletters and other avenues of outreach. Additionally, the District will solicit input from the Executive Steering Committee, which includes concerned municipalities, local, state and federal agencies, and local interest groups, on the contents an approach of the review plan. In order to satisfy requirements of the National Environmental Policy Act (NEPA), an environmental compliance document will be developed as part of the feasibility study process and released for public review. Comments received through these activities will be reviewed, incorporated into the feasibility report where appropriate and formal responses prepared by District staff.

6. INDEPENDENT TECHNICAL REVIEW (ITR)

The Project's Independent Technical Review Team (ITR team) has been integral in the Feasibility Study process, and have already participated in a review of several interim products including H&H modeling and Feasibility Scoping Meeting documentation. The entire feasibility study report, including NEPA documentation, will undergo ITR. Dr. Checks is being utilized by the review teams. The ITR team identified to date is listed in *Table 6.1*. Additional team

members/disciplines will be added to the ITR Team during the completion of the feasibility study. Cost estimates of project features will be ITR'd by the Cost Engineering Center of Expertise located at the Walla Walla District. The District will work with the Planning Centers of Expertise to identify an ITR lead outside of LRD and will work with LRD staff to develop a recommendation for a lead PCX for the study.

Table 6.1 – Independent Technical Review Team

Discipline	Name	Office/Agency
Plan Formulation – FDR[1]		CELRL-PM-P
Plan Formulation – ER[2]		CEMVR-PM-F
Environmental Compliance		CELRN-PM-P
Economic Analysis		CELRL-PM-P
H&H Engineering		CELRC-TS-D-HH
H&H Engineering		CELRN-EC-H
H&H Engineering		CELRB-TD-HD
Cost Engineering		CENWW-EC-X
Structural Engineering		CELRC-TS-D-S
Environmental Engineering	TBD [3]	TBD
Mechanical Engineering	TBD [3]	TBD
Electrical Engineering	TBD [3]	TBD
Geotechnical Engineering	TBD [3]	TBD

[1] Representative of FRM PCX (LRD).
[2] Representative of ECO PCX (MVR)
[3] TBD – To be determined further in feasibility study when resources are needed. The PDT will coordinate with the respective PCXs and within the MSC to designate Regional Technical Specialist (or equivalent) reviewers for the remaining ITR positions.

7. EXTERNAL PEER REVIEW (EPR)

An external peer is not proposed as part of the feasibility study since is not likely to develop new processes that will change prevailing practices, utilize precedent setting methods or models, present complex challenges for interpretation, or result in controversial recommendations. The District held an FSM with the MSC and HQ on 14Sep07. During the FSM, the District presented the position that an EPR would not be required based upon the use of new technologies, innovative methods or models. MSC and HQ concurred with that assessment, but stated and EPR may be required based on total project cost and agreed that the final decision would be revisited once a baseline cost estimate for implementation has been developed. The need for an external peer review will be revisited prior to the completion of the feasibility study to determine whether or not study process, recommendations, or estimated project implementation costs would indicate the need for an external peer review. If it is determined at that time to conduct an external peer review, this peer review plan will be updated and reposted for public comment. Input on the external peer review panel will be sought from the Executive Steering Committee, communities within the upper Des Plaines River watershed, advocacy groups, local, state and federal agencies. Input will be requested through the Chicago District web site and through upper Des Plaines River watershed newsletters as well.

8. MODEL CERTIFICATION

The Upper Des Plaines Feasibility Phase II Study is utilizing a number of numerical models to perform project analyses. These models include, HEP/HGM (developed by USACE-ERDC with new community models for the upper Des Plaines River watershed), HEC-FDA (developed by USACE-HEC), VISTA (a commercial off-the-shelf transportation model developed for the Chicago Area Transportation Study), HEC-1, and HEC-RAS. Of the numerical models utilized for the study, it is anticipated that certification/approval will be needed for three models, which include: HEP/HGM, HEC-FDA, and VISTA as outlined in *Table 8.1*. The District is working with both Planning Centers of Expertise on the model certification/approval issues for HEP/HGM and VISTA. Corporate model certification for HEC-FDA is underway and the District is assumes the model will be certified soon. The model certification/approval will be completed before the study is submitted for review and approval.

Table 8.1 – Status of Planning Model Certification

Model Name	Model Type	Requirement	Proponent	PCX	Status
HEAT (HEP/HGM)	Corporate/Federal Model for Ecosystem Outputs	Certification of Community Models	CELRC/ ERDC	ECO-PCX	Ongoing
HEC-FDA	Economics	Corporate Certification	HEC/IWR	FRM-PCX	Ongoing
VISTA	Transportation	COTS-Approval	CELRC, Northwestern University & VISTA Group	FRM-PCX/ IWR	District coordinating documentation with the developers

9. KEY REVIEW ASSUMPTIONS

- All reviews, documents, and information sharing will be handled electronically via electronic mail, ftp website, or CD storage.
- Dr. Checks will be utilized for the ITR.
- Technical staff will provide a response to ITR comments. A signoff will be provided by the PR team after review of District responses.
- ITR documentation will be part of the submittal package for the Feasibility Study.

10. STUDY AND REVIEW SCHEDULE

There are several key milestones scheduled for this study that require a review of documentation by the Independent Technical Review Team as indicated below:

Major Study Milestones:

Signed FCSA and Initiate Feasibility Study – February 2002
Issue Resolution Conference (IRC) – March 2003
Feasibility Scoping Meeting (FSM) – September 2007
In-Progress Review (IPR) – November 2008
Alternative Formulation Briefing (AFB) – August 2009
Draft Feasibility Study / Draft EA or EIS –TBD

Anticipated ITR Reviews:
Documentation for FSM – June through August 2007
Documentation for IPR – July through October 2008
Documentation for AFB– June through July 2009
Draft Feasibility Study / Draft EA or EIS – TBD

11. CHICAGO DISTRICT CONTACTS

12. BUDGET

An estimate of costs for the independent technical review is under development.